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#621-104105

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August 29, 1967

*Refer to next meeting*MEMORANDUM

TO: The committee comprising Dr. Jacobson, Chm., Dr. Loosli and Dr. Reimann.

FROM: Robert C. Hockett

SUBJECT: New grant application from John E. Noakes, Ph.D. - No. 624.

ENCLOSURE. We enclose herewith a new grant application from Dr. John E. Noakes of the Oak Ridge Associated Universities, Oak Ridge, Tennessee 37830.

Dr. Noakes made two or three visits to this office to discuss his past research and new plans, before submitting the application here enclosed.

In talking with him I had in mind the general attitude of the Board as expressed when the subject of Polonium-210 in tobacco first arose. The consensus, as I recall it, was that any realistic effort to define the possible health hazard due to polonium in tobacco must be part of the general problem of dose-response relationships in exposure to any alpha-emitting radioactive material. Since the Atomic Energy Commission is very deeply and extensively involved in such studies it seemed inadvisable for the Council to dabble with that problem on a small scale.

The applications from Werthamer (#595 and #596) were submitted to the Board in March 1967 to relieve the staff of responsibility in disposition. It was denied, (1) because of doubts expressed by Dr. Hasterlick about the proposed methodology, (2) because it proposed to study differences in lung burden of polonium in smokers vs non-smokers without any kind of provision for determining "how much is too much" in terms of hazards and (3) on the general grounds mentioned above.

The Noakes proposal is of quite a different character. The man impressed me as knowing what he was talking about and his institutional connection suggest that this should be the case. The proposed work is aimed at following up clues as to the origin of polonium-210 in tobacco with a possibility of demonstrating relatively simple and inexpensive means of reducing the content materially. The same study may also be pertinent to many other crop plants.

Whether or not polonium-210 is presently a hazard in tobacco, or whether this can easily be shown, it seemed to me that the industry might be interested in such means of minimizing this contamination, as a matter of public policy. I know that the companies have sponsored some work on polonium but do not know whether this has included anything substantially equivalent to what Noakes proposes here. Hence, I am sending a copy of this application to a member of the industry technical group for comment, and memorandum.

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MEMORANDUM - CONT'D

Noakes included parts 2 and 3 of the proposal in a tentative manner. He is not a biologist and would not undertake systematic studies of animal exposures to smokes from tobaccos containing different known levels of polonium-210 "grown-in" without full consultation concerning methods of exposure and of systematic biochemical and pathological examination. He merely indicates that he would be glad to cooperate in setting up such studies and in providing the materials if this kind of follow-up should be wanted after the first phase. I think this question must be left in abeyance at present. We have been trying to develop better equipment and methods for exposing small animals chronically to whole, fresh, "normal" cigarette smoke and for measuring the actual exposures achieved. Such exposures have not so far given any clear or reproducible evidence of a direct carcinogenic effect of cigarette smoke on the lungs. Hence, we cannot judge at present how worthwhile it would be to try comparing the actions of three smokes with different polonium levels. Further experience gained the next year or so may help decide this question. Similar questions pertain to such biological test systems as that which Dr. Furst has been using, the Heston intravenous administration method that Dr. Homburger has been trying out, or to the mouse-skin painting method.

R. C. H.

P.S. I am enclosing a copy of a paper by C. W. Francis and G. Chesters of the University of Wisconsin entitled Radioactive Ingrowth of Polonium-210 in Tobacco Plants, which may anticipate Noakes to some degree. A copy has been sent to Noakes for his comment.

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